BETTERBRICKS

# BUILDING COMMISSIONING

## for better public buildings

CASE STUDY

Boise State University Student Recreation Center

"Commissioning allowed the owner-occupant to move into a building that works on day one. It greatly reduced the break-in period and increases the odds that staff will be knowledgeable about building operation and keep it working well. It reduced warranty issues."

-Jim Szatkowski, Idaho Division of Public Works

### COMMISSIONING QUICK FACTS

Building: Boise State University Student Recreation Center

Location: Boise, Idaho

Completion date: October, 2002

Scope of project: New construction

Commissioning cost: $40,280[1]

First-year cost benefit: $20,000[2]

Annual energy savings: $11,050[3]

[1] Commissioning providers fee only.

[2] Cost reduction or avoidance.

[3] Annual energy savings based on cost of electricity of $0.0494/kWh and natural gas of $0.755 /therm.

### RECREATION CENTER EXERCISES GOOD PRACTICES FOR LONG TERM FITNESS

As a growing university in downtown Boise, ID, Boise State University recognized the dire need for a recreation facility for its students and staff. The result is the BSU Recreation Center, a two story, 90,000 square foot building with a large gym, elevated running track, exercise spaces such as weight rooms and racquetball courts, large locker rooms, an office area, day care space, and an outdoor recreation equipment checkout area. Partly due to the size and complexity of the building, the decision was made to commission it.

**BUILDING COMMISSIONING**

Is a systematic and documented process of ensuring that the owner's operational needs are met, building systems perform efficiently, and building operators are properly trained.

Although commissioning began late in the project, during the construction phase, the commissioning provider developed a "Systems Concept and Operation Manual" which described the design intent and expected operation of the systems. Included in this document is the basis for design, detailed sequence of operations, and narrative description of system operation in lay terms.

Commissioning services were provided for the mechanical and electrical systems, including: building automation system controls, HVAC, lighting, life safety/fire alarm, fire protection system, and the television signal distribution system. The commissioning process identified problems with major leakage of conditioned air, the boiler and hot water pumps running unnecessarily, and excessive heating and cooling of unoccupied spaces. Many of these items would have become warranty issues and/or occupant complaints, not to mention big energy wastes.

over

Boise State University
Student Recreation Center

In addition, a few operation concerns were addressed prior to the facility becoming occupied. This resulted in better reliability and system performance that will occur over the building life cycle. Building operators should experience less down time due to fewer corrective repairs to equipment. Properly functioning building systems will use less energy, occupants will be more productive in a healthier workplace, and building systems will last longer.

While some issues identified after construction continue to have a negative impact on the building operation, they still can be corrected. The commissioning effort made every attempt to guide the resolution of these issues, however the intent of the commissioning was to adjust the building to optimum operating efficiency and establish a benchmark of that performance. That benchmark documentation established by the commissioning agent will serve as a guide to the on-going operation of the Student Recreation Center.

## LESSONS LEARNED

- Clearly define commissioning processes and requirements prior to project bidding.
- Begin commissioning as early in the building process as possible.
- Commit to making corrections soon after problems are found.
- In multi-use facilities allow for final testing after full occupancy.

## COMMISSIONING BENEFITS

- Established a documented operational baseline
- Fewer start-up and warranty issues
- Building O&M staff received training on equipment operation
- Higher productivity due to occupant satisfaction
- Numerous issues resolved due to third-party commissioning

"We plan to use Commissioning in future projects because we will be assured that a building is operating at its optimum performance and peak efficiency."

-Einar Norton, Asst. Director of Facilities, BSU

## PROJECT PARTNERS

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